

The perinatal nutrition of the mother has a profound effect on the development of the foetus and neonate. Over the past five years, the scientific world has recognised the vital and unique role of one particular nutrient in the structure and function of the brain, the retina and the nervous system of the human infant.



This essential nutrient is Docosahexaenoic acid, DHA.

DHA is an essential fatty acid (EFA) - 'essential', because very little can be synthesized by our bodies; it has to be obtained from our diet instead. A developing foetus has no capacity to synthesize DHA at all, so it must rely on its mother for an adequate supply. It is important, therefore, that the mother should have an adequate store for both herself and for her child-to-be. In the first few weeks of embryonic development, the mother's blood supplies the foetus with large amounts of DHA, and in the last trimester of pregnancy, the DHA content of the brain's cerebrum and cerebellum - which contains centres for speech and abstract thought - increases threefold.

DHA lacking in modern diet

DHA has been part of the human diet since time began. Described as a long chain polyunsaturated Fatty Acid, or LCP, it is found mainly in fish and shellfish. Significant amounts used to be obtained from some animal meats and products such as eggs, but today, in the industrialised West, these sources often only provide trace amounts, a result of the intensification of agriculture. This, together with the decline in fish consumption, has led to a worrying reduction of DHA in the diet generally, and specifically in the maternal diet. As a result, the DHA content of breast milk has declined by about 35% between 1981 and 1996.

DHA and preconception

Essential fatty acids in pregnancy and in early human development are vitally important structural elements of cell membranes and are therefore instrumental in the formation of new tissues. DHA is essential to brain development in the foetus and is enriched throughout the entire brain cortex. The basic building material in the brain is fat: 50% of total fatty acids in the body are concentrated in the retina, adrenal glands and in the brain as DHA. DHA is concentrated in the neurones and synapses of the brain, ensuring optimal function of the brain cell membranes which are essential for the transmission of nerve signals.

Benefits of high levels of DHA during pregnancy

Epidemiological studies and nutritional intervention trials have suggested that high dietary levels of DHA are associated with distinct advantages for both the mother and the baby. In Denmark, Scotland, the Faroes, and Canada, for example, babies born in communities eating significant amounts of fish, compared to those born to non-fish-eating mothers, displayed greater birth weight, larger head circumference, longer body length, and greater gestational age. In other trials, fish oil capsules containing DHA have been given as nutritional supplements in the last trimester resulting in significantly increased levels of DHA in the mother and the neonate and heavier babies of greater gestational age at birth.

Similar studies have reported that both fish eating and dietary DHA fish oil supplementation can reduce pregnancy induced hypertension and the incidence of prematurity. Even very high levels (6g per day of fish oil) were tolerated with no adverse effects.

DHA and lactation

The infant brain continues to grow and develop rapidly for the first year after the birth. There is a three-fold increase in brain weight from about 350g to 1100g during this period. Much of this increase in weight is due to nerve cell growth and there is a great demand for DHA during this time, which must be satisfied from breast milk. We know that the neuro-development and the visual acuity of formulated-milk-fed infants is retarded relative to breast feeding infants and that there is a long term consequence of this inducing reduced childhood intelligence. It has also been suggested that postnatal deficiency of DHA may induce a predisposition to adult degenerative diseases.

If the maternal diet is low in DHA, the breast milk will correspondingly be low in this vital nutrient. Breast-milk levels of DHA can be boosted by eating fish regularly, and by the intake of nutritional supplement capsules containing DHA-rich oils, which transfer, in turn into the infant's red blood cells and tissue.

Infants with particular risk of low DHA status at birth include:

- Those born to mothers who smoke, consume alcohol, take drugs
- Those born to mothers who are diabetic, suffer from PKU, etc.
- Those born to mothers of poor nutritional status
- Those born to mothers who are Vegan
- Pre term infants
- Twins, multiple birth siblings
- Second, third, etc. children (compared to first siblings)
- Those which are small for their gestational age

DHA and Supplementation:

For her own well-being and that of her future child, we always recommend that a woman contemplating pregnancy should begin supplementing her diet with Essential Fatty Acids as early as possible, as it takes time for DHA to become incorporated into human tissue. Many women have low levels or are deficient in DHA, especially in developing countries. Studies indicate that DHA supplementation can be of assistance to the developing child for at least the first 18 months, and longer if a deficiency exists.

Many health practitioners now recommend DHA supplementation for pregnant women and nursing mothers, as does the World Health Organisation, which has recommended that all infant formulations be DHA enriched.

Zita West VitalDHA:

Vital DHA addresses the problem of the lack of DHA in the modern diet by making DHA readily available in a safe, concentrated, convenient nutritional supplement. Zita believes that DHA will soon become 'the next Folic Acid.'

Ideally, we recommend that Vital DHA is taken for a few month's prior to conception and then all the way through pregnancy and after the birth, until breast-feeding is discontinued. However, it can be of benefit whenever you choose to start.